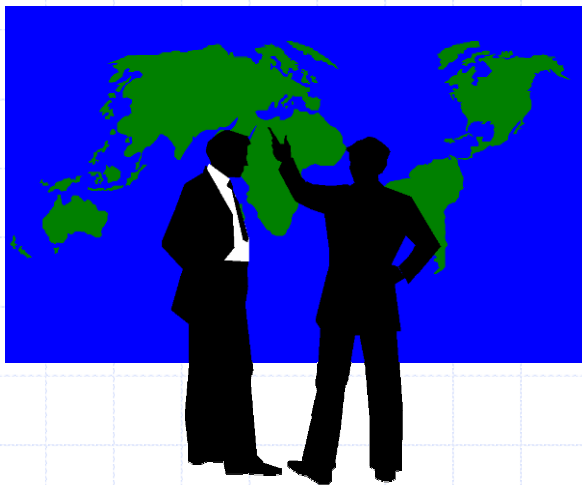




U.S. Department of Energy

OAK RIDGE NATIONAL LABORATORY

CHP Subcontractors Coordination Review Meeting



April 22, 2004
Oak Ridge National Laboratory's
Washington D.C. Office

Name of Contract and Subcontractors

Technical Support for CHP Applications -
Develop Database of CHP Installations with
Thermal Energy Storage (TES) and/or
Turbine Inlet Cooling (TIC)

§ Prime Sub: The Cool Solutions Company

§ Subcontractor: Avalon Consulting, Inc.

§ Contact:

§ John S. Andrepont

§ 630-353-9690

§ CoolSolutionsCo@aol.com

Description of Task(s)

§ Task

- § Develop database of CHP Installations with TES and/or TIC

§ Goals and Objectives

- § Raise awareness of CHP
- § Facilitate development of CHP markets

§ Targeted Sectors

- § End use – education, medical, airport, government, commercial, industrial, other, and district (multi-user) systems
- § Geographic – CA, TX, Northeast, other U.S.

Description of Progress Against Task(s)

<u>Milestone</u>	<u>Completed</u>
1. Complete database format	Mar 03
2. Identify prelim (~80%) entries	Apr 03
3. Substantially complete database	Jun 03
4. Identify additional entries	Jul 03
5. Completion of database	Aug 03
6. Submit Draft Summary Report	Sep 03
7. Submit Final Summary Report	TBD

FY03 Deliverables and Availability

Deliverables

1. Detailed Database (in *MS Excel*) of U.S. CHP installations incorporating TES and/or TIC
2. Summary Report (in *MS Word*), including:
 - § Observations and lessons learned from the demographics of the database
 - § Conclusions re: qualitative market potential for CHP/DG when integrated with TES and/or TIC

Availability

- § Electronic version for on-line availability on DOE websites for CHP (and others?)
- § Hard copy

Coordination with Stakeholder Groups and Other Project Teams

- § Database development directly involved communications and interactions with:
 - § CHP end-users
 - § System and equipment suppliers
 - § Industry associations (e.g. IDEA, TICA)
 - § Government agencies
 - § Universities and researchers
 - § Past journals, mag's, conf. proceedings

CHP-TES/TIC Database Format

§ Excel Spreadsheet

- § Line entry for each CHP-TES/TIC installation
- § Grouped by State
- § Columns for each of 61 data categories
- § 5 pages logically-grouped data cells:

<u>Data Group</u>	<u>Data cells/line</u>
High-level project summary data	19
CHP system details	18
TES and/or TIC system details	11
Costs, benefits, comments, source	6
Detailed contact information	7

Results

- § Detailed 56 CHP sys with TES &/or TIC
- § 53 in U.S. (+3 in different continents)
 - § 19 (36%) in CA
 - § 5 (9%) in TX
 - § 11 (21%) in Northeast
 - § 33 of 56 (59%) use TES
 - § 31 of 56 (55%) use TIC
 - § 8 of 56 (14%) use TES and TIC
- § Details in ~2,000 data cells + summaries

Conclusions

Observations and Lessons Learned

- § Broad scope of existing CHP-TES/TIC
 - § All climates, all geographic regions
 - § End-uses – all types, 55% District Energy
 - § All ages, most since 1985
 - § TES and/or TIC often retrofitted to CHP
 - § Capacities from 60 kW to 412 MW
 - § Many tech types and configurations
 - § Prime reason: econ (also eff/env, others)
- § Wide applicability for CHP w/ TES/TIC

Conclusions

Market Potential for CHP with TES &/or TIC

- § TES &/or TIC often benefits CHP
 - § TES levels & matches load profiles, improves capital economics
 - § TIC dramatically improves hot weather CT output and capital economics
- § TES and TIC sometimes complement
- § TES/TIC can aid growth of CHP mkts
- § Understanding/dissemination would further DOE goals & add momentum

FY04-05 Timeline

- § Receive comments on Draft Summary Report, from ORNL / DOE -
 - § timing TBD
- § Issue Final Summary Report -
 - § within 1 month of receipt of comments on Draft Summary Report

Questions?